

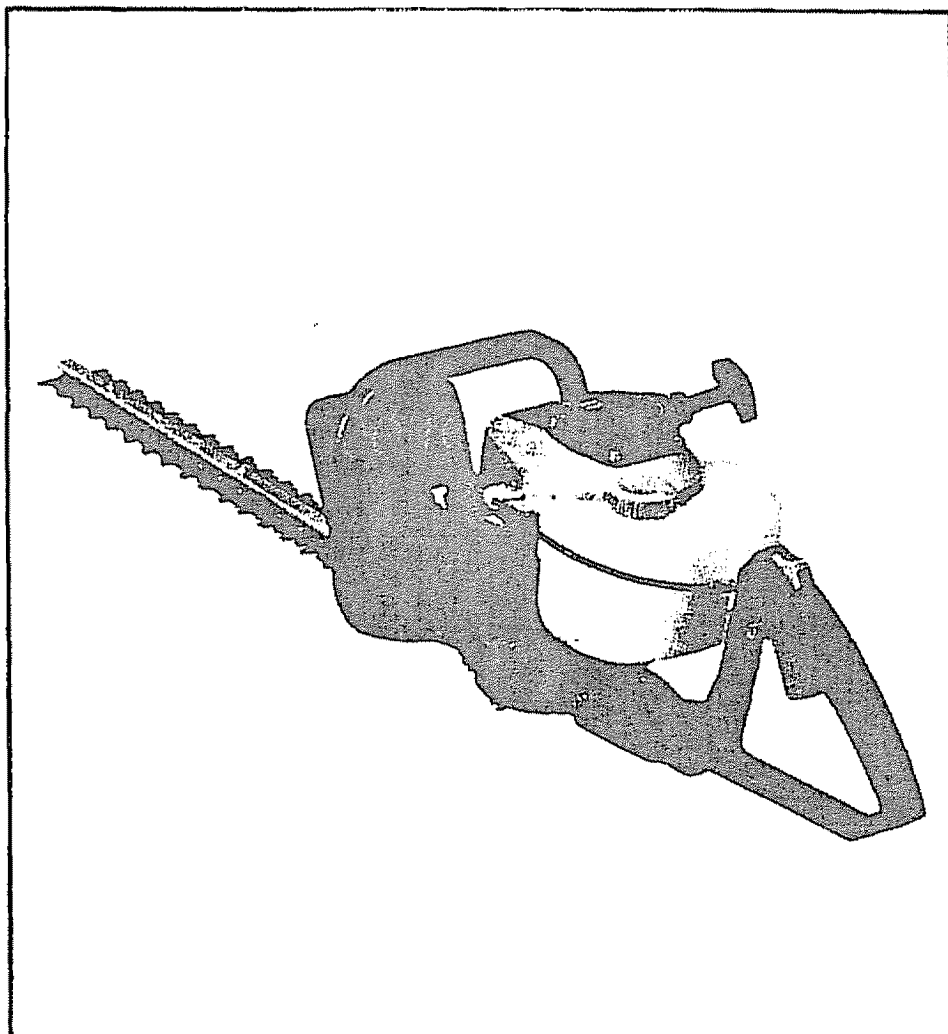
5209500101

**SEARS**

owner's  
manual

MODEL NO.  
636.796670

CAUTION:  
Read Rules for  
Safe Operation  
and Instructions  
Carefully



**CRAFTSMAN**

**20.3cc GAS BUSHWACKER**

- Assembly
- Maintenance
- Operation
- Repair Parts

Sears, Roebuck and Co., Chicago, ILL 60684 U.S.A.

**TWO YEAR LIMITED WARRANTY ON CRAFTSMAN  
BUSHWACKER 636. 796670**

For two years from date of purchase, when this BUSHWACKER is maintained, lubricated, and tuned up according to the operating and maintenance instructions in the owner's manual, Sears will repair free of charge any defect in material or workmanship.

This warranty excludes blades, spark plug, and air cleaner: which are expendable parts and become worn during normal use.

If this BUSHWACKER is used for commercial or rental purposes, this warranty applies for only 30 days from the date of purchase.

WARRANTY SERVICE IS AVAILABLE BY CONTACTING THE NEAREST SEARS SERVICE CENTER/DEPARTMENT IN THE UNITED STATES. This warranty applies only while this product is in use in the United States.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

SEARS, ROEBUCK AND CO.  
DEPT. 698/731A  
SEARS TOWER  
CHICAGO, ILLINOIS 60684

## SAFETY RULES AND PRECAUTIONS

1. Before each operation, make sure that the screws are not loose or missing, that the components are not damaged, and that the blades are not chipped off or cracked. If a blade is chipped or cracked replace it with a new one.
2. Do not attempt engine or blade adjustments or refueling before allowing the engine and muffler to cool.
  - a. Do not remove the fuel tank cap while the engine is running or when it is still hot.
  - b. Clean off fuel tank cap area before refueling. Do not smoke while refueling.
  - c. Take care not to spill any fuel. If it is spilled, wipe it off.
  - d. Never operate on gasoline only. As this engine is of 2-cycle type, use mixed fuel whose mixture ratio is 16:1 (1 gal. gasoline to 8 oz. oil) and a proper lubrication oil such as Sears Catalog Number 36555.
3. Do not operate the machine when your physical condition is not good. Never touch the plug cap during operation to protect yourself from electric shock.
4. Never operate the machine wherever ventilation is not enough.
5. Before starting the engine, make sure that the blade does not touch anything. In startup of the engine, be careful not to turn the blade toward bystanders. Position BUSHWACKER securely. (In startup, place BUSHWACKER in a level place so as to prevent the blade from moving.)
6. Wear safe clothes (safety shoes, goggles, earmuffs, gloves, etc.) Never wear loose clothing or jewelry while operating your BUSHWACKER.
7. Do not admit any persons or animals within the working area (30 feet or less from the site). When plural operators work together in the same place, maintain at least a 30 feet distance from each other and exchange warning shouts if necessary. Pay special attention to keep bystanders, especially children away from the working site.
8. Stop the engine and pay special attention to the blades whenever you carry the BUSHWACKER from one place to the next before and after operation.
9. Never let any child handle the machine.
10. Use BUSHWACKER only for cutting of young trees, grass, etc. of which diameter is 0.2" or less. Never use BUSHWACKER to cut metals or other hard materials.
11. Never operate BUSHWACKER in a bad weather condition (rain, snow, strong wind, abnormal atmospheric temperature, etc.)
12. Keep this manual in place so that one can refer to it repeatedly for safety operation and to teach possible users how to operate the machine.



**CAUTION:** The operation of any BUSHWACKER can result in Foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety glasses or eye shields before commencing power tool operation. We recommend Wide Vision Safety Mask for over spectacles or standard safety glasses, available at Sears Retail or Catalog Stores.

## KNOW YOUR BUSHWACKER

Your new BUSHWACKER has been carefully packed at the factory to prevent damage during shipping and storage, however, even with the best of preventative measures, damage does sometimes occur. It is recommended that you follow the check out procedures listed below:

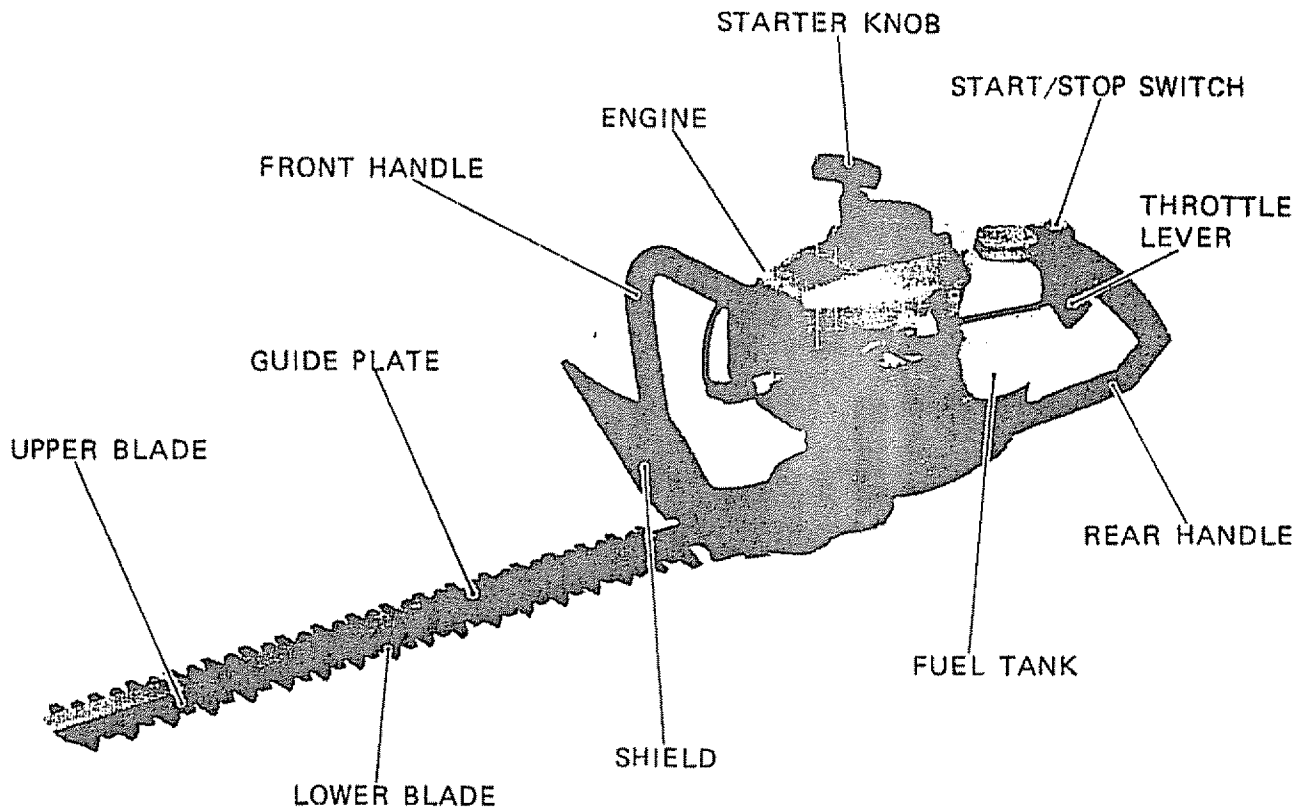
Remove all items from the carton, lay them out and check the parts to be sure that you have everything required for assembly. Also check carefully for any visible damage. (IN THE EVENT THAT SOMETHING IS DAMAGED OR MISSING OR BOTH, NOTIFY YOUR SEARS STORE IMMEDIATELY.)

You should familiarize yourself with the various parts of your BUSHWACKER before attempting to assemble or operate the unit. Refer to drawing below.

### SPECIFICATIONS

ENGINE	TYPE	2 cycle air-cooled	BLADE	OVERALL LENGTH	18"
	DISPLACEMENT	20.3 cc (1.24 Cu. In.)		TOOTH PITCH	0.98"
	CARBURETOR	Diaphragm type		ENGINE RPM	8000 rpm
	FUEL TANK CAPACITY	17.5 U.S. fl. oz. (0.5ℓ)		CUTTING STROKES PER MINUTE	32.2 times/sec (8000 rpm)
	SPARK PLUG	NGK BM7A or CHAMPION CJ 6•		DRIVE SYSTEM	
	LUBRICATION	Fuel oil Mixed 16 to 1 (1 gal. gasoline to 8 oz. oil)		CLUTCH TYPE	Dry Centrifugal
DRY WEIGHT		10.5 lbs (4.8 kg)	CLUTCH ENGAGEMENT	3800 rpm ±200 rpm	
DIMENSION		35.5 x 8.7 x 8.6 in.	BLADE DRIVE	Double cam drive	

\*SEARS CATALOG NUMBER-36402



\* Specifications are subject to change without notice.

## PREPARING FOR OPERATION

### Fuel and oil mixture

Inspect the fuel tank and fill with clean, fresh fuel of the proper mixture. This engine requires a mixture of 16 parts gasoline to 1 part oil (1 gal gasoline to 8 oz oil). Use 71-36555 Craftsman Engine Oil or a high grade two cycle engine oil.

**WARNING:** Experience indicates that alcohol blended fuels (called gasohol or using ethanol or methanol) can attract moisture which leads to separation and formation of acids during storage. Acidic gas can damage the fuel system of an engine while in storage.

To avoid engine problems, the fuel system should be emptied before storage for 30 days or longer. Drain the gas tank, start the engine and let it run until the fuel lines and carburetor are empty. Use fresh fuel next season. See Storage Instructions for additional information.

Never use engine or carburetor cleaner products in the fuel tank or permanent damage may occur.

**DO NOT MIX GASOLINE AND OIL DIRECTLY IN THE ENGINE FUEL TANK.**

**IMPORTANT:** Failure to follow proper fuel mix instructions could result in serious damage to the engine.

### CAUTION:

When preparing fuel mixture, mix only the amount needed for the job you are to do. Do not use fuel mixture that has been stored longer than two (2) months. Fuel mixture stored longer than this will cause hard starting and poor performance. If fuel mix has been stored longer than this time it should be replaced and filled with a fresh mixture.

### CAUTION! NEVER over Fill Fuel Tank

NEVER add fuel to the tank in a closed un-ventilated area. DO NOT add fuel to this unit near an open fire or sparks. BE SURE to wipe off spilled fuel before attempting to start the engine. DO NOT attempt to refuel an extremely hot engine.

### Check points before operation

- CHECK for loose bolts, nuts and fittings.
- Clean the air filter of all dirt, etc. before the operation.

## PRECAUTIONS DURING OPERATION

1. If the blades have stopped on account of a branch caught during the trimming, be sure to stop the engine and eliminate the branch. Refrain from cutting too hard or too thick a branch (over 1/4" in diameter).
2. When the machine is running, never touch the blades. Never point the blades toward a person.
3. Hold BUSHWACKER firmly with both hands.
4. The engine speed must not be excessive but just enough to do the cutting.

5. To avoid a burn, do not touch the engine during the operation or immediately after stopping the engine. Handle the engine after it is completely cooled.
6. Never operate BUSHWACKER on unstable ground or standing on tiptoe. Never use it while climbing a ladder.
7. Do not use the BUSHWACKER continuously for a long time. It is normal to take a break of 10 to 20 minutes after every 50-minute operation.
8. Never leave the BUSHWACKER running unattended.
9. If there is any trouble during operation, be sure to stop the engine first. (Move the switch to STOP.)

## STARTING AND STOPPING

1. When starting the engine, set the switch to START. (Figure 1)

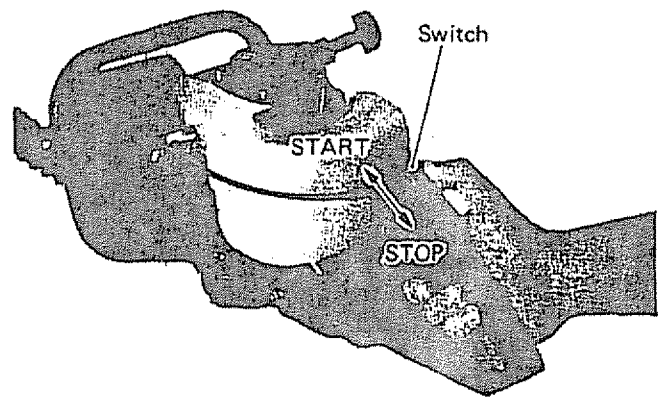


Figure 1

2. The choke control is a "Lever" type. (See Figure 2). To choke the engine, push the choke lever to "Close" position. NOTE: If the engine is warm, it may be started with the choke lever mid-way between "OPEN" and "CLOSE", depending on the individual engine.

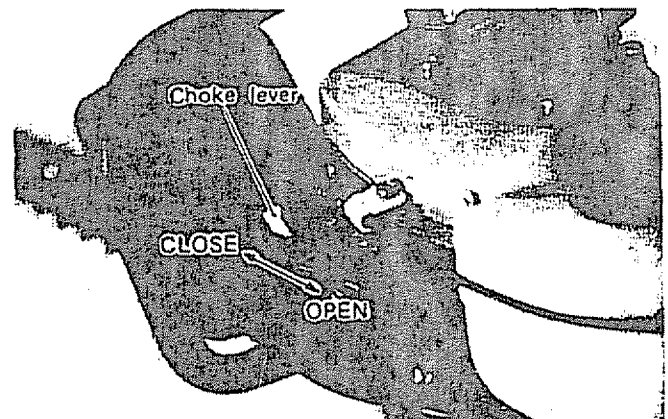


Figure 2

- Pull the throttle lever a little, push the throttle knob and lock the throttle lever at the starting position. (Figure 3)

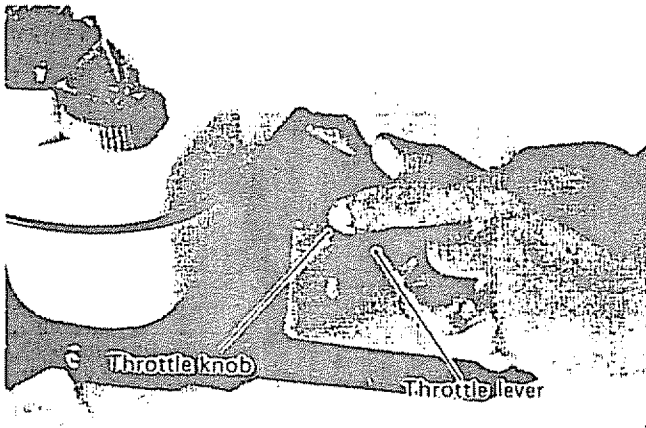


Figure 3

- Pull the recoil starter several times. (At this time, hold the machine securely so as to keep it fixed.) (Figure 4)

The carburetor is not filled with fuel. Pull the starter 7 to 8 times to feed up fuel from tank to carburetor.

- Caution:** — Never let go of the starter rope from its fully extended state. Return the starter rope to its original position while holding it securely.
- Be careful not to break the starter rope.

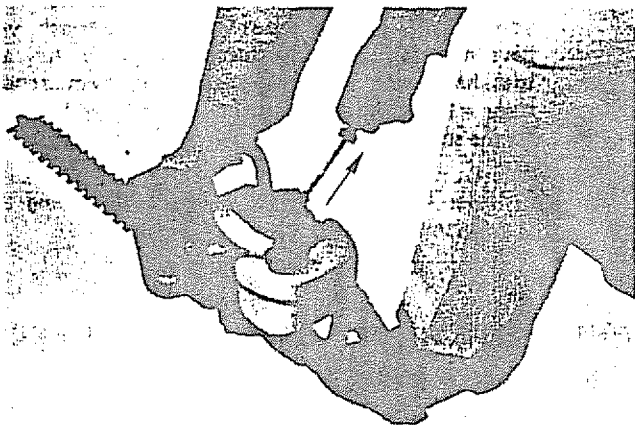


Figure 4

- After starting, open the choke lever by degrees to the full and reset the throttle lever to the low speed, while checking the engine operating state.

**Caution:** — In starting of the engine and during operation, be fully careful to keep bystanders or obstacles off the operating side and confirm safety requirements for operation.

- After starting the engine, warm up the engine (for about 5 minutes at medium speed). Immediately after starting, speed up the engine slowly. Never open the throttle fully

without a load, otherwise the engine will run at a high speed reducing engine life.

#### Stopping the Engine

- Reduce the engine rpm to idle by releasing the throttle.
- Set the stop switch to stop. (Figure 1)

#### Blade sharpening

If the edges are rounded and do not cut well any more, grind off only the shaded portions. Do not grind the contact surfaces (sliding surfaces) of the top and bottom edges. (Figure 5)

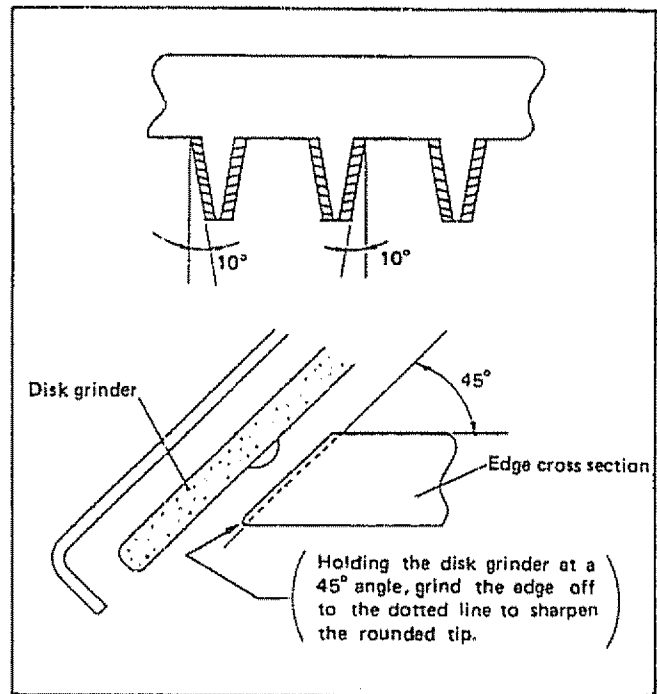


Figure 5

- Note:**
- 1) Before grinding, be sure to secure the blade firmly
  - 2) Wear gloves, protective glasses, etc.
  - 3) An edge ground too much at a time or ground many times will lose its hardened layer. It becomes rounded and dull very quickly in use. Order replacement blades from Sears Repair parts.

#### Adjustments

**SPARK PLUG MAINTENANCE** — If the spark plug electrode area has an excess of carbon buildup, the efficiency of the plug will be seriously reduced. REMOVE THE CARBON WITH A SPARK PLUG CLEANER OR WIRE BRUSH.

After cleaning the spark plug RESET THE ELECTRODE GAP TO .024-.028.

## Carburetor

Proper adjustment of the carburetor is very important to the operation of this engine. The carburetor has been carefully adjusted at the factory and therefore should not require any further adjustment.

## Adjustment of Engine Idling

If the blade happens to run in idling, adjust the cable adjuster of the throttle wire to stop blade movement in idling.

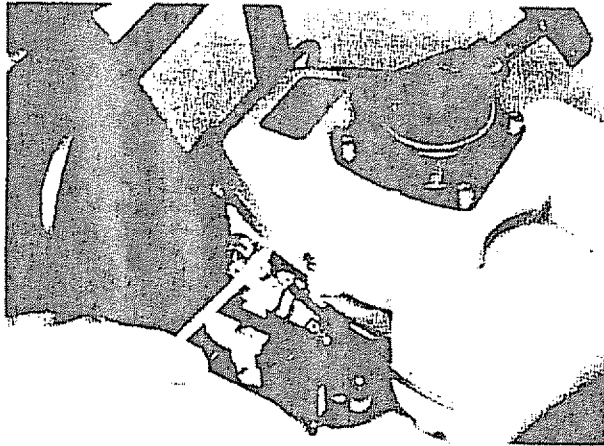


Figure 6

## STORAGE AFTER OPERATION

1. Clean every part, repair faulty sections, and apply a thin coat of oil on metal parts to prevent rust. In cleaning the machine, always use a clean cloth. Never use strong solvents, such as gasoline.
2. If the BUSHWACKER will not be used for a long period of time, drain the fuel from the tank, then start the engine and keep the engine running until it consumes all the fuel left in the carburetor.
3. Store the BUSHWACKER in a clean and dry place. Always keep children away from the machine.
4. Remove the spark plug, inject a small amount of engine oil through the spark plug hole. Then pull the recoil starter a few times to put a thin coat of oil on the cylinder. Install the spark plug again when the piston has stopped at a top dead center.

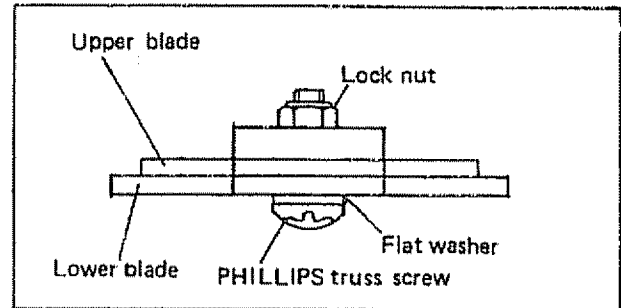
It is important to prevent gum deposits from forming in essential fuel system parts such as the carburetor, fuel filter, fuel hose, or tank during storage. Also, experience indicates that alcohol blended fuels (called gasohol or using ethanol or methanol) can attract moisture which leads to separation and formation of acids during storage. Acidic gas can damage the fuel system of an engine while in storage.

To avoid engine problems, the fuel system should be emptied before storage of 30 days or longer. Follow these instructions:

## BLADE ADJUSTMENT

(Performed with engine stopped.)

The blades wear with use when you notice a decrease in cutting performance adjust the blades as follows.



Cross-sectional view of blades

- (1) Loosen lock nut.
- (2) Tighten truss head screw lightly until it stops turning. Then turn it back one-fourth to one half turn.
- (3) Tighten lock nut. Lubricate the blades after adjustments.
- (4) Start the engine and operate the blades at high the speed for a minute or so.
- (5) Stop the engine and carefully feel the blades with your hand. If they are just warm to the touch, you have made the proper adjustments, but if they are too hot for you to keep touching them, repeat steps #1, #2 and #3 above backing off slightly more on the screw.

**Note:** Never fail to stop the engine before making the adjustments.

## PREVENTATIVE MAINTENANCE CHECK LIST AND STORAGE TIPS

Be sure the engine and all other parts are clean.

Check all nuts, bolts, screws, etc. making sure they are tightened and secured as they should be.

Inspect carefully for any fuel or oil leaks.

Check the air cleaner assembly for excessive dust or dirt. If the filter requires cleaning, use the following procedure: Remove the filter and wash in soap and water or blow off with compressed air. DO NOT clean filter in gasoline or other flammable solvent.

Inspect the muffler exhaust port (tail pipe). If there is any clogging, remove carbon particles adhering to it.

## MAINTENANCE

1. In every 10–20 hours, inject one or two ounces of grease through a grease nipple installed in the gear case of the BUSHWACKER. Be sure the engine is stopped while greasing the gear case.

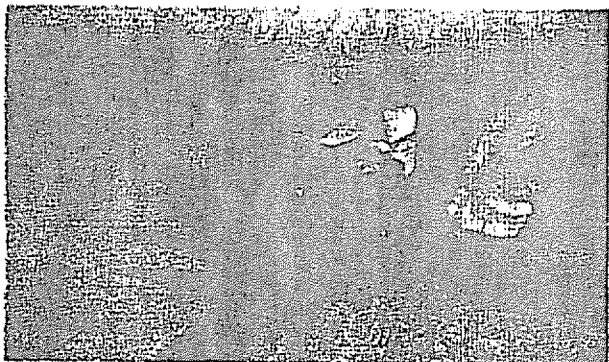


Figure 7

2. Stop the engine before lubricating the blades during the cutting operation. Frequent lubrication using a light weight oil during cutting will greatly add to blade life.

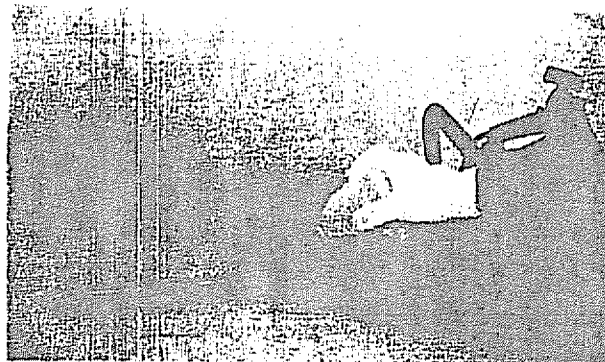


Figure 8

MEMO



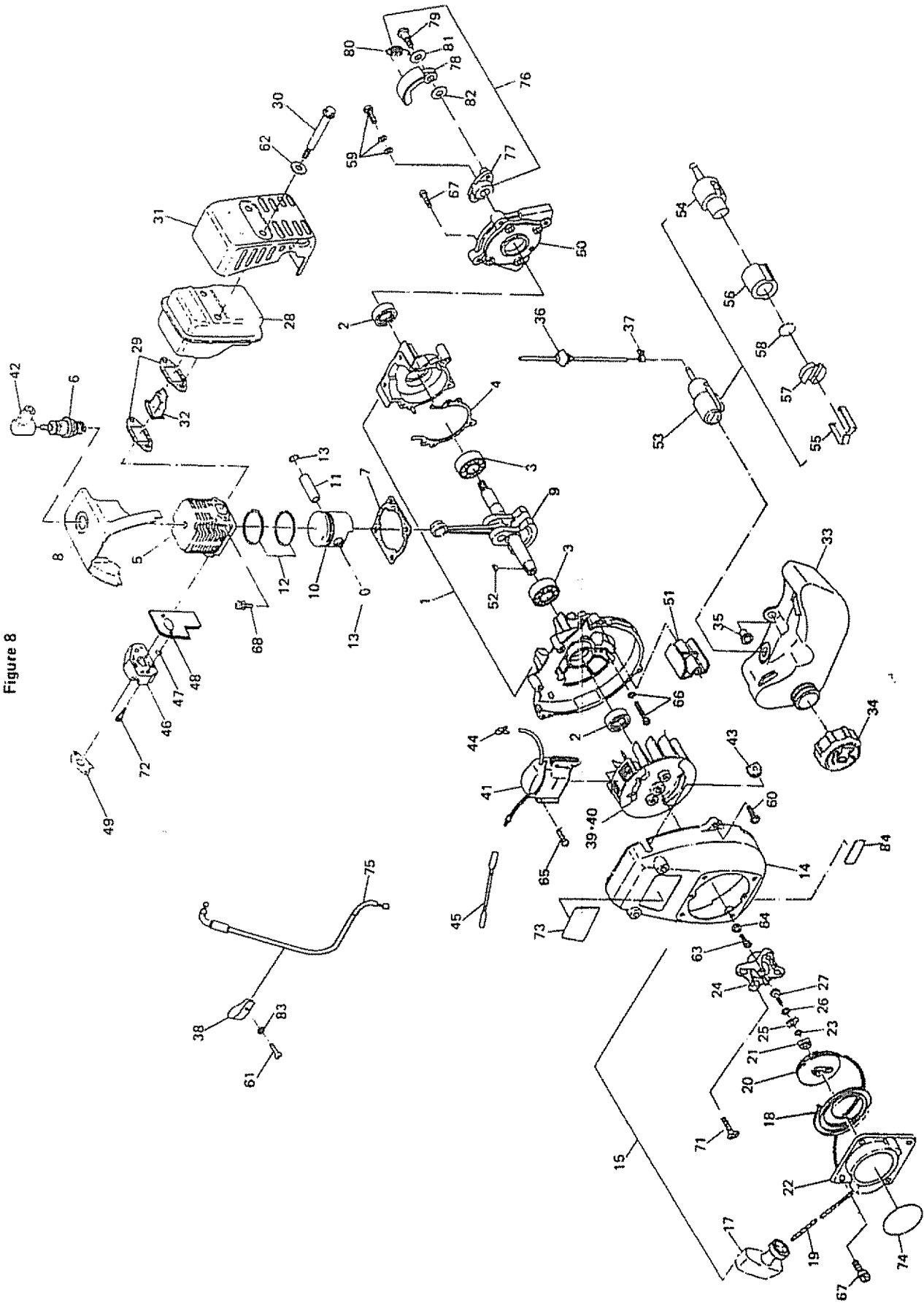
SEARS BUSHWACKER PARTSLIST-MODEL 636, 796670

Figure 7

KEY NO.	PART NO.	QTY	DESCRIPTION	KEY NO.	PART NO.	QTY	DESCRIPTION
1	118-110	1	Rear handle ass'y (incl. 2~15)	43	901-081	2	Bearing
2	900-140A	1	Screw (M4 x 10)	44	900-040	2	Screw (M3 x 5)
3	118-121	1	Holder, cable	45	030-110	1	Plate, rod slide
4	118-111	1	Plate, wire	46	118-101	1	Felt
5	118-001	1	START/STOP switch	47	118-134	1	Lower blade
6	118-115	1	Throttle lever	48	118-104	1	Lower case
7	902-050	1	Snap ring	49	900-257	5	Bolt (M5 x 16) (Washer/Spring washer)
8	118-112	1	Pin, lever	50	900-258	2	Bolt (M5 x 20) (Washer/Spring washer)
9	118-114	1	Spring	51	008-250	3	Washer
10	118-113	1	Fixing knob	52	008-247	3	Screw
11	118-109	1	Rear handle (L)				
12	900-141A	5	Screw (M4 x 16)				
13	900-142A	1	Screw (M4 x 30)				
14	118-108	1	Rear handle (R)				
15	900-100A	6	Hexagon nut (M4)				
16	900-321A	1	Plain washer (M6)				
17	900-320A	1	Spring washer (M6)				
18	900-348	1	Bolt (M6 x 50)				
19	900-301	1	Hexagon nut (M6)				
20	900-321A	1	Plain washer (M6)				
21	900-320	1	Spring washer (M6)				
22	900-347	1	Bolt (M6 x 40)				
23	027-142	1	Drum				
24	027-146	1	Drum collar				
25	118-103	1	Upper case				
26	900-348A	2	Bolt (M6 x 30) (Washer/Spring washer & washer)				
27	118-130	1	Front handle (incl. shield)				
28	900-340	2	Bolt (M6 x 15) (Washer/Spring washer)				
29	900-203	2	Flange nut (M5)				
30	900-301	2	Lock nut (M6)				
31	900-300	3	Hexagon U-nut (M6)				
32	118-132	1	Guide plate				
33	902-001	1	Nipple, grease (M6)				
34	901-101	1	Bearing				
35	901-061	1	Bearing				
36	118-102	1	Pinion				
37	118-131	1	Gear, crank				
38	118-135	1	Crank				
39	118-100	2	Rod ass'y				
40	900-256	1	Screw (M5 x 10)				
41	900-255	2	Screw (M5 x 16)				
42	118-133	1	Upper blade				

SEARS BUSHWACKER PARTSLIST-MODEL 636.796670

Figure 8



## SEARS BUSHWACKER PARTSLIST-MODEL 636. 796670

Figure 8

KEY NO.	PART NO.	QTY.	DESCRIPTION	KEY NO.	PART NO.	QTY.	DESCRIPTION
1	EC02E-S0120A	1	Crank case compl. (incl. 2 ~4)	46	EC02E-0309A	1	Heat insulator (incl. 47)
2	0440-12999-1	2	Oil seal	47	00217-0500-0	2	Nut (M5)
3	0600-12992-0	2	Ball bearing	48	EC02ER-3128A	1	Heat insulator packing
4	EC02E-1103A	1	Crank case packing	49	EC02E-3112A	1	Gasket (WY)
5	EC02ER-1107B	1	Cylinder	50	118-124	1	Spacer
6	0650-14981-0 Y	1	Spark plug (NGK BM7A or CHAMPION CJ 6)	51	EC02E-5111/1	1	Plate
7	EC02E-1104B	1	Cylinder packing	52	00532-0310-1	1	Woodruff key
8	EC02ER-5116A-RB	1	Cylinder cover	53	EC01A-6040	1	Filter
9	EC02E-0201D	1	Crank shaft compl.	54	5-2328	1	Body ass'y filter
10	EC02E-2104B	1	Piston	55	43-53	1	Clip filter
11	EC02E-2106	1	Piston pin	56	125-59	1	Filter felt
12	EC02E-2107	2	Piston ring	57	108-147	1	Retainer filter
13	0665-07999-0	2	Clip	58	106-17	1	Packing filter
14	EC02ER-5119-RB	1	Fun cover	59	NB23-2001	1	Holder clamping bolt ass'y (M6x14)
15	EC02E-0512	1	Recoil starter compl. (incl. 17 ~27)	60	EC02E-5102	2	Tapping screw (A) (M5x16)
17	5215005140	1	Starter knob	61	EC02E-5113	1	Tapping screw (B) (M5x20)
18	5215005020	1	Spiral spring	62	EC03F-3995 A	2	Washer
19	5215005130	1	Starter rope	63	00113-0616-01	1	Bolt ass'y (M6x16)
20	5215005030	1	Reel	64	00312-0600-0	1	Washer (M6)
21	5215005040	1	Dog	65	00431-0516-0	2	Screw (M5x16)
22	5215005010	1	Starter case	66	00435-0525-0	3	Screw ass'y (M5x25)
23	5215005050	1	Wave washer	67	00435-0518-0	8	Screw ass'y (M5x18)
24	5215005150	1	Starter pulley	68	0119-05987-0	2	Bolt (Socket head) (M5x18)
25	5215005110	1	Retainer	71	00411-0620-0	2	Screw (M6x20)
26	5215005120	1	Washer	72	EC02E-9522	2	±Screw ass'y (M5x22)
27	5215005060	1	Center screw (M5)	73	EC02ER-5120	1	Label
28	EC02ER-0312	1	Muffler ass'y	74	EC02ER-5121	1	Label
29	EC01A-3020	2	Muffler gasket	75	EC02ER-0903	1	Throttle wire
30	EC02EF-3164	2	Muffler clamping bolt	76	NB16-2051	1	Clutch compl. (incl. 79 ~83)
31	EC02ER-3133A-TA	1	Muffler cover	77	NB02A-201A	1	Holder
32	EC02E-3145/1	1	Spark arrester	78	NB26-2102	2	Clutch shoe
33	EC02ER-6106B	1	Fuel tank	79	NB26-2103	2	Clutch bolt
34	5216004002	1	Fuel tank cap compl.	80	NB16F-2104	1	Spring (Clutch)
35	EC01R-6501	1	Spacer	81	NB02A-206	2	Washer (A)
36	EC02ER-0610	1	Rubber tube	82	NB02A-207	2	Washer (B)
37	EC01A-6070	1	Hose clamp	83	00312-0500-0	1	Washer (M5)
38	EC06A-0412	1	Clamp	84	EC04-9112	1	Label
39	EC02ER-0702	1	Magneto compl. (incl. 40, 41)				
40	1110-0340000	1	Fly wheel				
41	1140-0470000	1	Ignition coil				
42	EC02-090B	1	Plug cap compl. (incl. 44)				
43	EC01A-7001	1	Gromet				
44	0654-00998-2	1	Plug cap spring				
45	EC06A-0726	1	Lead compl. (B)				



SEARS BUSHWACKER PARTSLIST-MODEL 636. 796670

Figure 9

KEY NO.	PART NO.	QTY.	DESCRIPTION	KEY NO.	PART NO.	QTY.	DESCRIPTION
*1	EC02ER-0606	1	Carburetor compl. (incl. 2 ~27)	1	5209500101	1	Owner's manual
*2	34-514	1	Valve assembly-throttle	2	EC01A-09D4	1	Tool kit
3	5-2288	1	Body assembly-pump				
4	92-258	1	Gasket-pump				
5	95-99	1	Diaphragm-pump				
6	157-280	1	Plate-pump				
7	92-257	1	Gasket-plate				
8	92-146.	1	Gasket-metering diaphragm				
9	95-526.	1	Diaphragm assembly-metering				
10	21-158	1	Cover-metering diaphragm				
11	122-211	2	Sleeve-mounting				
12	16-103	1	Ring-packing				
13	112-183	1	Jet (#44)				
14	16-104	1	Ring-"O"				
15	16-71	1	Ring-spring retaining				
16	136-90	1	Washer				
17	52-30	1	Swivel				
18	167-91	1	Bracket-idle adjust				
19	98-323	1	Spring idle adjust				
20	96-314	1	Screw-idle adjust				
21	96-323Y	2	Screw-collar throttle				
22	96-325Y	4	Screw-metering cover				
23	EC02E-3123	1	Wire holder				
24	EC02E-3104B	1	Air cleaner plate				
25	EC02E-3108	2	Spacer				
26	EC02E-3141A	1	Choke lever				
27	EC02E-3114A	1	Rubber seat				
28	EC01A-3072A	1	Prevent plate				
29	EC02E-3106	1	Element				
30	EC02ER-3130	1	Air cleaner cap				
31	00436-0512-0 N	1	Screw assembly (M5x12)				
32	00217-0500-0 N	1	Nut (M5)				
33	00431-0555-0 N	2	Screw assembly (M5x55)				

# SEARS

MODEL NO.  
636.796670

## How to Order Repair Parts

SEARS SERVICE  
IS AT YOUR SERVICE

The Model Number will be found on the top of recoil starter. Always mention the Model Number when requesting service or repair parts for your unit.

All parts listed herein may be ordered from any SEARS, ROEBUCK AND CO. OR SIMPSONS-SEARS LIMITED service units or most retail stores.

WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION AS SHOWN IN THIS LIST.

- |  |   |
|--|---|
| 1. The PART NUMBER                                     | 3 The PART DESCRIPTION                        |
| 2. The MODEL NUMBER<br>of the Bushwacker<br>636.796670 | 4. The NAME OF ITEM—<br>20.3cc Gas Bushwacker |

If the parts you need are not stocked locally, your order will be electronically transmitted to a Sears Repair Parts Distribution center for expedited handling



When you buy merchandise from Sears you get an extra something that nobody else can offer . . . Sears Service.

Across town or across the country, Sears Service follows you, providing trustworthy, competent service technicians using only Sears specified factory parts.

Your Sears Merchandise takes on added value when you discover that Sears has Service Units throughout the country. Each is staffed by Sears-Trained, professional technicians using Sears approved methods.

Sears, Roebuck and Co., Chicago, Ill. 60684 U.S.A.